SLATE

Photograph by Sigurd Fischer

Slate for Roofing, Flooring, Terraces, Walks

The product of our quarries is hard, dense slate rock of a degree of quality and color peculiar to the district. The quarried rock is made into roofing slate, slate flooring and garden flagging at our own quarries by experienced craftsmen in strict accordance with approved details and specifications.

All orders are executed under our personal supervision, assuring our clients that the years of our experience as slate makers have gone into the preparing of their material for the roof, floor or flagging.

Architectural Service

We will gladly prepare sketches, color schemes, specifications, details, etc., for all types of slate roofs. Samples sent on request.

O'Brien Brothers' Slate have the following advantages:

Colors—complete range of slate colors
Thickness—as desired
Surface Texture—smooth or rough
Roof Texture—designed as specified

Natural stone
Non-combustible
Waterproof
Long life
Resistant to climatic changes

No preservative required
Lower insurance premiums
High salvage value
Low maintenance costs

O'BRIEN BROTHERS SLATE CO., INC.
established 1901

• colors available

weathering green and gray Originally known as Sea Green, then as Weathering Green and of late described as Semi-Weathering Green and Gray. It is the basic product of Vermont quarries and most widely known and used. Grayish slate color when first quarried, upon exposure to the elements a percentage change to soft tones of buff and brown, the remainder retaining initial color. This change in color in no way affects the durability of the slate. Available in light and dark shades.

unfading green Is one of the strong, fast colors. The shades vary somewhat from a light green to a dark emerald color.

unfading mottled gray green Presents a grayish green background with promiscuous clouds or spots of mottling in dark, medium and light shades.

unfading mottled green and purple The green and purple color appears in each individual slate, in varying shades, some almost clear purple or green, but usually mottled. All blend together in a soft and harmonious effect. Can be furnished with purple or green predominating.

variegated purple The purple predominates—some slates being clear purple, but some with green spots and shadings. A small percentage change upon exposure to a harmonious shade of brown and buff color while others retain their original color.

mottled gray black Vary in shade from clear light gray to tones of dark gray, created by dark streaks, some running vertically, others crosswise of the individual slates.

Vermont black Vary in shade from dark gray to black.

rustics Made from top rock with green, gray, black and purple base rock. Face of slate shows colors in bronze and buff clear and in splotches with base rock color showing through splotches. Suggested specifications be for not less than ⅜″ thick and thicker.

unfading red Available in limited quantities only in random widths and lengths. The most expensive of all slate quarried.

All roofing slate described are guaranteed grade A slate conforming to federal specification SS-S-451.

• sizes

The foregoing colors can be furnished singly or in any desired percentage of each. Except as otherwise indicated, the average standard thickness is 3⁄16″ for commercial types with smooth texture. Rough texture slates are available in intermingled thicknesses from 3⁄16″ to ⅜″.

A "square" is the standard of measurement and is the number of pieces of any size required to cover one hundred square feet of roof surface, not including waste in cutting for hips, valleys, dormers, etc. For very steep roofs or siding where a 2″ double head lap is sufficient, fewer slates are needed.

Many slates are being applied over artificial roofings which have succumbed to the ravages of time and the elements, thus converting semi-permanency into permanent roof protection.

The standard lengths are 24″, 22″, 20″, 18″, 16″, 14″, 12″, 10″. For some years, architects have continued to favor the use of one length and random widths or graduated lengths and random widths. This avoids the multiplicity of uniform rectangular exposures and improves perspective. Any of the designated colors can be furnished in these thicknesses and estimated weights per square—3⁄16″ 700 to 800 lbs.; ¼″ 950; ⅜″ 1400; ½″ 1800; ¾″ 2500; 1″ 3400.

• nails for use with slate

Slate nails may be zinc coated, copper weld or copper. However, numerous slate roofs, applied with ordinary wire slate nails many years ago, have given a long period of service and are still intact. Freedom from moisture keeps nails dry and rustless. Under ordinary conditions, 3d nails are suitable for commercial standard slates on main roof sections and 6d for hips and ridges. Thicker slates require longer and heavier gauge nails. (Add one inch to twice the thickness of the slate.) Nail holes are machine punched, which is in accordance with Federal Specifications.

• application data

The orthodox method of application provides a double head lap of 3″, the exposure being determined by deducting the lap (3″) from the length of the slate and dividing the difference by 2. Thus a slate 18″ in length should show an exposure of 7½″ and undereave slate 11″ long. The length of the eave slate is found by adding not less than 3″ to the exposure of the regular slate.

The slate as quarried in the Vermont-New York district, being a permanent roofing material, should be properly applied by competent and reliable workmen, the most important detail being the maintenance of the 3″ head lap throughout.

Standard thickness slate weighs only about seven pounds to the square foot of roof surface.

Any roof construction conforming to good engineering practice and suitable for other roofing material is adequate for standard slate. This fact should be fully recognized in the interest of truth, economy and conservation. The weight of the roof covering is an insignificant factor when compared with the combined weights of rafters, sheathing, snow, etc., and the water saturation of artificial roofing materials. Research conducted by the National Slate Association fully established the fact that any building strong enough for other types of roofing material is equally sufficient for standard thickness slate.

• specifications

(1) General and Guarantee

(a) The General Conditions of the contract are hereby made a part of the contract and the roofing contractor shall examine these General Conditions and thoroughly acquaint himself with all the requirements therein contained.
(b) This contractor shall furnish all materials and labor in accordance with the drawings and these specifications.
(c) This contractor shall inspect all surfaces prepared for slating by other trades, point out to the proper authority all defects, and shall not proceed with the laying of felt, flashings or slate until the necessary corrections have been made.
(d) Roofing shall be applied by workmen experienced in the applying of slate.
(e) The roofing contractor shall furnish his own scaffold or rigging, or arrange with the general contractor for the use of scaffolds furnished by others.
(f) A written guarantee shall be furnished that the materials used are in strict accordance with these specifications, and that any and all repairs required on the roof due to defective materials or workmanship furnished under this contract shall be made without cost to the owner for a period of one year.

(2) Roofing Felt

(a) On all boarding to be covered with slate, furnish and lay asphalt saturated rag felt, not less in weight than that commercially known as "30-lb." felt. In this weight, per 100 sq. ft., a tolerance of 1 lb. plus or minus will be allowed.
(b) Felt shall be laid in horizontal layers with joints lapped toward eaves and at ends at least 2 in. and well secured along laps and at ends as necessary to properly hold the felt in place and protect the structure until covered by the slate. All felt shall be preserved unbroken, tight and whole.
(c) The felt shall lap over all hips and ridges.
(d) Felt shall be lapped 2″ over the metal of any valleys or built-in gutters.

(3) Slate

All slate shall be hard, dense, sound rock, machine punched for two nails each. All exposed corners shall be practically full. No broken corners on covered ends which sacrifice nailing strength or the laying of a watertight roof will be allowed. No broken or cracked slates shall be used.

For Standard Thickness Roofing Slate

(a) Slate shall be of commercial standard thickness, Grade A, as furnished by O'Brien Bros. Slate Co., Inc., Granville, N. Y.
(b) State whether one standard length or graduated lengths and random widths.
(c) State whether one color, or the percentage of each color required.
(d) A certificate shall be furnished the roofing contractor by the quarrier certifying that the roofing slate furnished are in accordance with these specifications and/or approved layout.

For Graduated Slate Roof

(a) Slate shall be Grade A as furnished by O'Brien Bros. Slate Co., Inc., Granville, N. Y., machine punched for two holes, and varying in thickness from . . ″ at eave to . . ″ at ridge; the percentage of each thickness to be respectively .... The thicknesses shall be intermingled in the various courses, modulating from the heavier and thicker slates in the lower courses of the roof to the thinner slates at the ridge, in such way and manner as will develop the best architectural effect. A detailed roof layout for the application of the slate shall be furnished by O'Brien Bros. Slate Co., Inc., Granville, N.Y., and approved by the architect before material is fabricated.
(b) All slate shall be in standard random widths graduated in length from . . ″ at eave to . . ″ at ridge, applied with standard 3″ lap and exposures.
Add paragraphs (c) and (d) as listed under "Standard Thickness" specifications.

(4) Hips

(a) All hips shall be laid to form "saddle" hips without metal underneath. (Specify "Boston" or "Mitered" Hips if preferred.)

(5) Ridges

(a) All ridges shall be laid to form "saddle" ridges. The nails of the combing slate shall pass through the joints of the slates below.

(6) Valleys

(a) All valleys shall be laid to form "open" valleys.

(7) Elastic Cement

(a) Cement shall be an approved brand of waterproof elastic slaters' cement colored to match as nearly as possible the general color of the slate.

(8) Nails

(a) All slate shall be fastened with two large-head slaters' solid copper nails. Use 3d (1¼″) nails for slates 18″ or less in length, 4d (1½″) for 20″ or longer, and 6d (2″) for slates on hips and ridges.

(9) Slating

(a) The entire surface of all main and porch roofs, the roofs and sides of any dormer windows, if shown, and all other surfaces so indicated on the drawings, shall be covered with slate in a proper and watertight manner.
(b) The slate shall project 2″ at the eaves and 1″ at all gable ends, and shall be laid in horizontal courses with the standard 3″ head lap, and each course shall break joints with the preceding one. Slates at the eaves or cornice line shall be doubled and canted ¼″ by a wooden cant strip.
(c) Slates overlapping sheet metal work shall have the nails so placed as to avoid puncturing the sheet metal. Exposed nails shall be permissible only in top courses where unavoidable.
(d) Neatly fit slate around any pipes, ventilators, etc.
(e) Nails shall not be driven in so far as to produce a strain on the slate.
(f) Cover all exposed nailheads with elastic cement. Hip slates and ridge slates shall be laid in elastic cement spread thickly over unexposed surface of undercourses of slate, nailed securely in place and pointed with elastic cement.
(g) Build in and place all flashing pieces furnished by the sheet metal contractor and co-operate with him in doing the work of flashing.
(h) On completion all slate must be sound, whole and clean, and the roof shall be left in every respect tight and a neat example of workmanship.

a few representative roofing installations

installation	location	architect
Salvage residence	Glen Head, L. I., N.Y.	Roger H. Bullard
bathhouses	Saratoga Springs, N.Y.	J. H. Freedlander
Central Islip State Hospital	Islip, L. I., N.Y.	William Haugaard
Euthenics Building, Vassar College	Poughkeepsie, N.Y.	York & Sawyer
Edsel Ford residence	Seal Harbor, Me.	Duncan Candler
Connecticut Mutual Life Insurance Building	Hartford, Conn.	Benjamin W. Morris

tennis court surfacing

Available in fine grade red or green in bags or in bulk. Coarse grade #11 in red or green color, oiled or not according to customer's wishes. About two tons coarse and one ton fine necessary to do a regulation size court.

slate flagstone

Vermont natural colored slate flagstone is the ideal material for terraces, walks, pools, auditoriums, flat roof surfaces, flooring, garages, etc.

Furnished in substantially the same colors, separately or collectively, as indicated for roofing slate. Most popular type is designated as "full range of colors including 5% of Red." The irregular units (sketch No. 6) are by far the more popular. Range about 1 to 4 square feet in area; ¾″ to 1″ thick—natural surfaces. Weight about 12 pounds per square foot. Sold by the "square" of 100 square feet. Random rectangles (sketch No. 4) also furnished; with machine trimmed or rough sawed edges. Can be laid out and diagrammed by quarrier for specified areas when required.

● Specifications

Random Irregular Flagstone

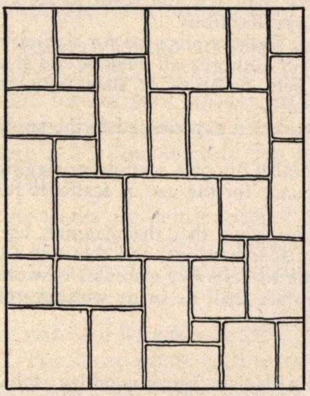
Flagstone to be No. 6 Grade A Vermont slate as supplied by O'Brien Bros. Slate Co., Inc., with natural surface in irregular shaped units ranging 1 to 4 square feet each—¾″ to 1″ thick in (a) full range of colors, i.e., greens, grays, purples and a percentage of red, or (b) (specify the color or range of color desired).

Random Rectangular Flagstone

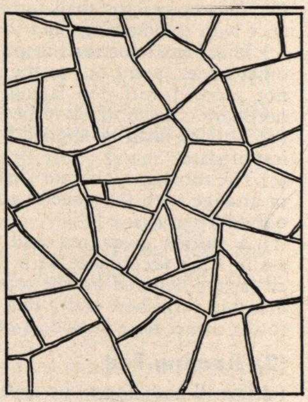
Flagstone to be No. 4 Random Rectangular units furnished with natural surface. Colors shall be (a) Full range or (b) (specify the color or range of colors desired). Thicknesses shall be (a) ¾″ to 1″, or (b) ½″. Edges shall be (a) machine trimmed or (b) rough sawed. For more formal treatment of No. 4 Random Rectangular slate, including interior floors, where a more selected installation is desired, specify as follows:

Flagstone in No. 4 Random Rectangular pattern to be laid out by quarrier to fit floor areas shown on drawings and furnished with sawed or rubbed edges. Surface shall be either (a) natural cleft or (b) sand rubbed.

run of quarry units of no specified size



No. 4 Random Rectangular



No. 6 Irregular

Slate to be cut to lay with ½″ joints according to setting plan to be submitted by quarrier. Colors to be (a) full range or (b) as selected by the Architect.

● installation specifications for slate floors, terraces and walks

1. slate:

The contractor shall furnish and lay all slate for walks, floors and terraces listed below. Slate shall be (here specify color, thickness, surface, size when necessary, shape of pieces, style of edges and width of joints).

2. type of installation:

(*Note:* Specification writer may copy here only those paragraphs covering type of installation desired.)

(A) on soil with grass joints. (Soil or Turf Sub-bed.)

Mark out location of all walks and terraces to be laid with grass joints. If ground is not well settled, wet and tamp thoroughly. Fill any holes or depressions with thoroughly tamped soil. Lay slate directly on soil in (here specify arrangement and pattern). Each piece of slate shall rest on a solid, even bed with the top surface level.

(B) on soil with grass joints. (Cinder Sub-bed.)

Mark out location of all walks and terraces to be laid with slate with grass joints and excavate to a depth of eight to ten inches. Fill excavations with cinders from six to eight inches deep, well rolled and tamped to an even surface. On top of cinder bed place a two-inch layer of soil and on soil lay slate in (here specify arrangement and pattern). Fill all joints with soil to level of surface of slate and sow grass seed.

(C) laid in concrete on earth:

(*Note:* If experience in a given locality warrants greater depth, specification writer can change figures accordingly.)

(*a*) Mark out location of all walks and terraces to be laid with slate in concrete and excavate to a depth of ten inches. Fill excavation with cinders well rolled and tamped to within five inches of level desired.

(*b*) On cinder bed place a course of cinder concrete three inches deep. Follow at once with the setting mixture (three parts sand with one part of cement). As soon as this setting bed is leveled, sprinkle it with pure Portland Cement to make perfect bond between slate and setting bed and lay slate in (here specify arrangement and pattern). Thoroughly wet the pieces of slate as set and bed to desired level. Point all joints with concrete mixed two parts well sieved sand and one part cement.

3. cleaning slate:

(*Note:* Only required for slate floors with concrete mixture joints.)

Sponge all slate as set on exposed surface with clean water to remove mortar stains, and if necessary upon completion, rub down with a solution three parts coal oil and one of linseed oil. (If light or weak solution of muriatic acid is needed and used for cleaning, care should be taken to wipe only exposed slate surfaces to avoid acid eating out cement joints.)

4. completion:

Upon completion all slate shall be sound, whole and clean and the work shall be left smooth and in every respect a neat example of craftsmanship.

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